

SCIENTIFIC ABSTRACT

A Pilot Study Evaluating the Migratory Patterns of Immature and *In vitro* Matured Dendritic Cells Transfected with RNA Encoding PSA in Patients with Metastatic Prostate Cancer

Our long-term objective is to develop clinically effective and broadly applicable vaccine strategies for a wide range of cancer patients by inducing immunity with dendritic cells transfected with antigen encoded by messenger RNA. We have previously shown that vaccination with autologous immature dendritic cells transfected with PSA RNA represents an effective strategy to stimulate PSA specific and potentially therapeutic T cell responses in prostate cancer patients. Since it has been demonstrated that dendritic cell maturation is a crucial step for efficient antigen presentation, we have recently focused on developing clinically applicable methods that allow the generation of stably matured, RNA loaded DC for clinical trials. Maturation has profound impact on the induction of homing and chemokine receptors on dendritic cells, which direct them to secondary lymphoid organs such as lymph nodes and spleen. In this pilot study we seek to analyze potential differences in the migratory abilities of mature and immature RNA loaded DC in patients with metastatic prostate cancer. Here we propose to administer single doses of Indium-111 labeled mature and immature dendritic cells to cancer patients and determine and compare potential differences in the migratory capabilities of these cells *in vivo*. It is hoped that these studies will further define and ultimately improve the efficacy of dendritic cell based vaccination in the context of human malignancy.